



**Response to the
Request for Further Comment to the
SEM Committee Proposed Position Paper SEM-10-060
dated 2nd September 2010 on the
*Principles of Dispatch and the Design of the Market Schedule
in the Trading and Settlement Code (the “Position Paper”)***

Introduction

arc21 is a collaborative legal public sector entity embracing eleven Councils located along the Eastern Region of Northern Ireland which covers 25% of the land base, populated by approximately 57% of the national population and accounts for approximately 54% of the national municipal waste (as currently defined) arisings.

The establishment of arc21 together with its functions is enshrined in legislation with the original provision being The Local Government (Constituting a Joint Committee a Body Corporate) Order (Northern Ireland) 2004.

In essence, arc21 is primarily responsible for activities associated with the production, ongoing development and implementation of a statutory Waste Management Plan (“the Plan”) within the Eastern Region Area. Part of the Plan addresses the identification of sites suitable for developing infrastructure and facilities for recycling material from waste and recovering energy so as to reduce Northern Ireland’s reliance on landfill as a means of waste disposal. Planning Policy Statement PPS11 identifies a range of preferred locations for new waste facilities, including quarries and brownfield sites.

The eleven constituent Councils of arc21 are Antrim Borough Council, Ards Borough Council, Ballymena Borough Council, Belfast City Council, Castlereagh Borough Council, Carrickfergus Borough Council, Down District Council, Larne Borough Council, Lisburn City Council, Newtownabbey Borough Council and North Down Borough Council.

arc21 is grateful for the opportunity to respond to the SEM Committee’s Proposed Position Paper. arc21 are ready and willing to engage further on any and all of the positions expressed in this paper either through subsequent formal consultation or bilateral meetings, as appropriate.

This response outlines the legal and policy imperatives which underpin the development of Energy from Waste and the policy, technical and licensing conditions and constraints which will determine the behaviour of the Energy from Waste facility as an electricity generator as currently contemplated in the on going public procurement arc21 are undertaking for its Residual Waste Treatment Project. Also, we highlight the Directives that define the arc21 feedstock as renewable in nature

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and the obligations on Member States to grant priority dispatch to renewable energy facilities.

The key position points arising from this paper can be summarised as follows:

- European Directives on waste have imposed statutory targets on Member States to reduce the quantity of waste going to landfill. A core part of the alternatives to landfill under the recently revised Waste Framework Directive (“WFD”) is Energy from Waste once it achieves certain energy recovery criteria. Failure to meet these targets could result in significant financial consequences for the Northern Ireland Government, waste disposal authorities and ratepayers.
- The arc21 EfW facility is being delivered in direct response to a national need to comply with binding EU waste targets. It forms a core element of the waste infrastructure that is being implemented in Northern Ireland which must be delivered in order to reach the targets set by EU Directives at Member State level.
- Energy from Waste facilities should unequivocally be accorded priority dispatch consistent with the provisions of EU Directives 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC (the “Renewable Energy Directive”) and 2009/72/EC of the European Parliament and of the Council of 13 July 2009 concerning common rules for the internal market in electricity and repealing Directive 2003/54/EC (the “Internal Market in Electricity Directive”).
- The Internal Market in Electricity Directive does not distinguish between plant that is ‘part renewable’ or ‘fully renewable’. It specifically refers to generating installations using energy from renewable sources. It does not specify or suggest any rate of utilisation as a qualification.
- The Internal Market in Electricity Directive supports the provision of priority dispatch to generating stations supplied by indigenous fuel. It empowers the Member State to direct the system operator to facilitate this if it so wishes.
- Energy from Waste is supported by Northern Ireland energy policy. This energy policy recognises the importance of Energy from Waste in achieving the dual role of contributing to security of supply and offering a waste management solution.
- Energy from Waste should be recognised as providing non-intermittent, renewable electricity that is 100% indigenously fuelled, contributing to improving security of supply and reducing greenhouse gas emissions and dependency on imported primary fuels.
- The fuel for Energy from Waste is provided at low or negative cost and will displace imported fossil fuels. This will directly reduce the cost to consumer of electricity within the SEM and will also reduce the exposure of the SEM to international primary fuel fluctuations.
- Energy from Waste will be a limited but significant addition to the SEM generation portfolio. Whilst, in terms of proportionality, Energy from Waste is at the margins of the electricity narrative for the Island of Ireland it is absolutely central to the narrative of managing residual wastes.

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- In the context of Energy from Waste, arc21 is obliged to accept its fuel in response to its statutory function and its statutory waste plan and targets and does not have control over the composition of its fuel. Energy from Waste is thus clearly distinguished in this regard from hybrid generators who will select their feedstock and composition on a commercial basis, in response to economic indicators. Imposition of a hybrid classification qualified by rates of renewable fuel utilisation on Energy from Waste technology will be a direct barrier to market entry, due to this inherent lack of control and certainty over fuel composition. This barrier will directly reduce and potentially prevent the potential renewable energy represented by Energy from Waste reaching the market and also result in a failure to meet statutory waste targets.
- Energy from Waste technologies operate in the context of technical constraints imposed by EU and National legislation, regulation and licensing. These constraints determine that Energy from Waste facilities must continuously treat waste and constantly produce energy while doing so.
- These constraints dictate that the ability to dispatch electricity at all times and to operate on a must-run basis are critical, not only to the operation of the facility, but to the achievement of statutory EU targets.
- Any risk to the dispatching of electricity or operating as a must-run unit will prove a significant barrier to entry to the market for Energy from Waste Facilities. This barrier could result in the loss of indigenously fuelled, non-intermittent renewable electricity as described above, in addition to a failure of Northern Ireland to meet its statutory waste targets.

Background

In July 2009 the SEM Committee published a consultation paper regarding the principles underlying dispatch in the Single Electricity Market and the design of the market schedule under the Trading and Settlement Code (SEM-09-073). This paper was published subsequent to a discussion paper (SEM-08-002) and an initial response paper (SEM-08-127). On the 2nd September 2010 the SEM Committee published a proposed Position Paper on the matters set out in the 2009 consultation paper.

In light of targets in Ireland and Northern Ireland to have 40% of electricity generated from renewable sources by 2020, it is likely that the number of units (e.g. wind turbines) qualifying for priority dispatch will increase significantly. It will increasingly fall to the system operator to determine, for other than economic reasons, who should be running in SEM. This is of significant concern to arc21 who are in the process of procuring an EfW facility in Northern Ireland.

arc21 and the Outcomes of SEM Committee SEM-10-060 Consultation

The key positions that arc21 would like to see clarified, as a result of this consultation exercise, are as follows:

1. Recognition that Energy from Waste fuelled by the biodegradable fraction of municipal solid waste is renewable energy in accordance with the provisions of the Renewable Energy Directive.
2. Unequivocal recognition that Energy from Waste facilities qualify for mandatory priority dispatch in accordance with the provisions of the Internal Market in Electricity Directive. The Directive does not distinguish between plant that is 'part renewable' or 'fully renewable', instead it specifically refers to generating installations using energy from renewable sources. Nowhere does it specify or suggest any rate of such utilisation as a qualification.
3. Recognition that Energy from Waste is clearly distinguished from hybrid generators, who will select their feedstock and composition of same on a commercial basis, in response to economic indicators. Energy from Waste accepts its fuel in response to national statutory obligations without control over composition. Imposition of a hybrid classification qualified by rates of renewable fuel utilisation in Energy from Waste will represent a direct barrier to market entry. This is due to the inherent lack of control and certainty over fuel composition. This will directly reduce and potentially prevent the potential renewable energy represented by Energy from Waste reaching the market.
4. We note that the SEM Committee has stated that the question of 'must run' is primarily a technical matter and is best addressed in the context of Grid Code requirements. However, we would like to highlight that the Grid Code determination in this regard will reflect only those technical constraints relating to the generating plant. It is not currently within the capacity of the system operator to consider policy issues in the determination of 'must run' status. We consider that to achieve such a status support and direction would need to be provided by the SEM Committee in recognition of Energy from Waste facilities:
 - Operating regimes, imposed by EU waste Directives;
 - Providing 100% indigenously fuelled, non-intermittent renewable electricity;
 - Ability to displace primary fossil fuels, resulting in reduced cost to SEM and reduced exposure to international fuel markets; and their
 - Technical characteristics - contributing constant, predictable base-load electricity close to demand centres utilising existing connection infrastructure.

The narrative which follows sets out concisely the drivers and determinants of the above key positions and the results arc21 wishes to see from the Consultation Process to enable the objectives of key strategic policies for waste to be delivered. These could be expanded on by engagement with the SEM Committee and further background and clarifications provided if required.

1. EU and National Drivers of Energy from Waste Technology

European Waste Legislation and Policy

The recently revised Waste Framework Directive (“WFD”)¹ is now the primary piece of European policy with regard to waste and its management in Member States. The objective of the WFD is to minimize the negative effects of the generation and management of waste on human health and the environment. This includes reducing the use of finite resources and favouring the practical application of the EU “waste hierarchy” which is set out in Article 5 of the WFD. The WFD provides the overall structure for waste management within the EU and is a cornerstone for European waste management policy.

The five-step waste hierarchy must be strictly adhered to in all national policy and legislation, with options positioned higher up in the hierarchy being prioritised ahead of those positioned beneath them. The WFD definitively clarified that Energy from Waste plants which meet specified energy efficiency criteria are classified as recovery, which positions them on the waste hierarchy above disposal operations such as low quality sorting and landfilling. This is particularly significant in light of national waste diversion targets imposed under the EU Landfill Directive².

The Landfill Directive provides that, by 2010, the UK must reduce the amount of Biodegradable Municipal Waste (“BMW”) going to landfill to 75% of the total amount (by weight) produced in 1995. Subsequently, the amount of BMW going to landfill must not exceed;

- 50% of the total amount (by weight) of BMW produced in 1995 by 2013; and
- 35% of the total amount (by weight) of BMW produced in 1995 by 2020.

If Member States exceed their target under the Landfill Directive, the EU Commission can bring the State to the European Court of Justice (ECJ) for breach of European Community law. If the ECJ judgment is not complied with, the Commission can refer the matter back to the ECJ, and propose that a penalty and a lump sum fine be imposed by the ECJ on the State. We note that any fines levied will likely be recovered by UK central government in proportion to which a region contributes to the failure. Already in place is a proxy for the infraction fine in the form of the Northern Ireland Landfill Allowance Scheme (NILAS) which levies a charge of £150/tonne on biodegradable waste not diverted from landfill. The NILAS scheme alone leaves Northern Ireland ratepayers exposed to tens of millions of pounds in domestic fines for failure to divert biodegradable waste even before factoring in the impact of any fines arising from EU infraction proceedings.

Position 1.1

European Directives on waste have imposed statutory targets on Member States to reduce the quantity of waste going to landfill. A core part of the alternatives to landfill under the WFD is Energy from Waste once it achieves certain energy recovery criteria. Failure to meet these targets could result in significant financial consequences for the Northern Ireland Government, waste disposal authorities and ratepayers.

¹ Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives

² Directive 99/31/EC

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Northern Ireland Waste Policy and Strategy

The Northern Ireland Waste Management Strategy: *Towards Resource Management* was published in 2006, following a review of the original strategy published in 2000. The Strategy provides the framework for establishing an integrated network of waste management facilities for Northern Ireland, as required by the EU WFD. It also incorporates Northern Ireland's measures for the management of biodegradable waste in fulfilment of Article 5(1) of the Landfill Directive.

The key aim of the Strategy is to help stakeholders to manage waste and resources effectively by reducing the quantities of waste produced and, where waste is generated, manage it in a way that minimises its impact on the environment and contributes positively to economic and social development. In line with this aim, the Strategy recognises the need for fulfilment of the requirements of the waste management hierarchy and hence encourages a move away from traditional disposal practices towards an integrated approach to recycling and resource recovery (including energy recovery). The key driver for this approach is the need to meet the requirements of the Northern Ireland Landfill Allowances Scheme.

Regional Waste Management Plans

One of the requirements of the WFD was the formation of sub-regional waste management groups with the aim of these being to facilitate the implementation of the requirements of the Directive at a local level. In fulfilment of this, Northern Ireland has three waste management groups as follows:

- arc21 (covering 11 Councils in the east of Northern Ireland);
- SWaMP2008 (covering 8 Councils in the south of Northern Ireland); and
- North West Region Waste Management Group (NWRWGM) (covering 7 Councils in the North of Northern Ireland).

Each of the three Waste Management Groups has prepared a Waste Management Plan, in fulfilment of Article 23 of the Waste and Contaminated Land (Northern Ireland) Order, 1997. The principal objective of the updated arc21 Waste Management Plan ("Plan") is to identify options for managing waste which draw the right balance between:

- The provision and maintenance of sufficient capacity to deal with the waste produced;
- Meeting strategic targets for reduction, recycling and recovery;
- The protection of the environment for present and future generations; and
- Optimising resource utilisation in the arc21 Region.

As part of the review of their Plan, arc21 undertook a technical assessment to determine the preferred solution for integrated waste management in the arc21 region and this included the requirement for the use of EFW facilities.

Northern Ireland Best Practicable Environmental Option

The Northern Ireland Best Practicable Environmental Option ("BPEO") for waste management was developed by the Department of the Environment in 2006 to provide further guidance on the level of infrastructure and services required in order to allow Northern Ireland to meet its statutory obligations under the WFD and the Landfill Directive.

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Within this document, a broad range of options for the treatment of municipal solid waste, commercial and industrial waste and construction, demolition and excavation wastes were considered. These comprised different combinations of technologies to divert waste from landfill including recycling, composting, anaerobic digestion, mechanical biological treatment (“MBT”), thermal treatment and advanced thermal treatment. These options were assessed against key decision criteria including feasibility, environmental impact, cost and social impact. The process identified the following with respect to waste management needs in Northern Ireland:

- The need for challenging but achievable recycling rates;
- A requirement to significantly reduce landfilling; and
- A requirement for a balanced mix of proven technologies to treat residual waste, including biological and thermal treatment.

Implementing the plan involves waste prevention, awareness raising and increased recycling initiatives and then as a logical next step the treatment of residual wastes through the processes of MBT and Energy from Waste.

The arc21 project will also contribute to a reduction in the greenhouse gas emissions associated with the waste industry. Waste-to-energy facilities divert biodegradable waste away from landfill and use it to produce renewable energy, reducing methane emissions from landfill as well as displacing electricity from fossil fuels. The International Expert Panel on Climate Change has noted that waste-to-energy can provide significant mitigation potential for the waste sector, especially in the short term, by replacing landfill³.

Position 1.2

The arc21 EfW facility is being delivered in direct response to a national need to comply with binding EU waste targets. It forms a core element of the waste infrastructure that is being implemented in Northern Ireland which must be delivered in order to reach the targets set by EU Directives at Member State level.

³ IPCC Fourth Assessment Report (AR4). Climate Change 2007: Mitigation of Climate Change available at <http://www.ipcc.ch/pdf/assessment-report/ar4/wg3/ar4-wg3-chapter10.pdf>

2. Treatment of Energy from Waste in EU and National Legislation and Policy

European Energy Policy and Legislation

The recovery of energy from waste is an important objective of both European waste and energy policy. The EU Biomass Action Plan⁴ describes waste as an underused energy resource and seeks to actively promote waste management techniques that use waste as a fuel. The implementation of the Action Plan is, in turn, a key goal in the European Commission's Renewable Energy Roadmap⁵, which considers the means to achieve a target of 20% of Europe's total primary energy requirement derived from renewable sources by 2020.

This target was incorporated in EU Directive 2009/28/EC (the "Renewable Energy Directive"). The Renewable Energy Directive provides that:

Article 16(2)(c) *"Member States shall ensure that when dispatching electricity generating installations, transmission system operators shall give priority to generating installations using renewable energy sources in so far as the secure operation of the national electricity system permits and based on transparent and non-discriminatory criteria"*.

The following two key definitions in relation to Energy from Waste are included in the same Directive:

Article 2(a) *"energy from renewable sources means energy from renewable non-fossil sources, namely wind, solar, aerothermal, geothermal, hydrothermal and ocean energy, hydropower, biomass, landfill gas, sewage treatment plant gas and biogases;"*

Article 2(e) *'biomass' means the biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste;"*

Therefore, 'renewable energy sources' as defined in Renewable Energy Directive includes the biodegradable fraction of industrial and municipal waste.

EU Directive 2009/72/EC (the "Internal Market in Electricity Directive") also reinforces the mandatory nature of priority dispatch for generating units using renewable energy sources:

Article 15(3) *"A Member State shall require system operators to act in accordance with Article 16 of Directive 2009/28/EC when dispatching generating installations using renewable energy sources. They may also require the system operator to give priority when dispatching generating installations producing combined heat and power."*

⁴ SEC(2005) 1573

⁵ COM(2006) 848 final; available at

http://ec.europa.eu/energy/energy_policy/doc/03_renewable_energy_roadmap_en.pdf

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Furthermore, the use of indigenous fuel sources is reaffirmed in the Internal Market in Electricity Directive which states, in relation to dispatching:

Article 15(4) *“A Member State may, for reasons of security of supply, direct that priority be given to the dispatch of generating installations using indigenous primary energy fuel sources, to an extent not exceeding, in any calendar year, 15 % of the overall primary energy necessary to produce the electricity consumed in the Member State concerned.”*

We consider that this provision reaffirms that EfW should be afforded priority dispatch. We note however that, under the SEM Committee’s Position Paper, that priority dispatch afforded under this provision is considered to be ‘discretionary’ and generating installations using indigenous fuel will be ranked after those using renewable energy sources. arc21 is firmly of the view that EfW qualifies for mandatory priority dispatch under the Renewable Energy Directive.

Position 2.1

Energy from Waste facilities should unequivocally be accorded priority dispatch consistent with the provisions of the Renewable Energy Directive and the Internal Market in Electricity Directive.

Position 2.2

The Internal Market in Electricity Directive does not distinguish between plant that is ‘part renewable’ or ‘fully renewable’. It specifically refers to generating installations using energy from renewable sources. It does not specify or suggest any rate of utilisation as a qualification.

Position 2.3

EfW should be considered to have mandatory priority dispatch under the terms of the Renewable Energy Directive. Also, the Internal Market in Electricity Directive supports the provision of priority dispatch to generating stations supplied by indigenous fuel. It empowers the Member State to direct the system operator to facilitate this if it so wishes.

NI Energy Policy

The Department of Enterprise, Trade and Investment (“DETI”) has recently published a new Strategic Energy Framework which sets a renewable electricity target of 40% and a renewable heat target of 10% by 2020. DETI considers that bio-energy could make a significant contribution to these targets. On behalf of the Bio-energy Inter Departmental Group, DETI has consulted on a draft Bio-energy Action Plan for Northern Ireland 2009–2014. The document identified the potential for the sustainable development of bio-energy in Northern Ireland including the appropriate use of wastes for energy production. The 2010 Strategic Energy Framework states:

“Energy from waste can also make a contribution to the overall energy mix and DETI continues to work strategically with the Department of the Environment on a number of cross-cutting issues to ensure that policies are aligned. This is particularly relevant in relation to energy and waste which, as well as offering waste management solutions, can also contribute to security of supply”.

The proposed arc21 facility will contribute directly to the achievement of EU targets for renewable energy. However it will also provide key benefits for the operation of the SEM, and for broader policy objectives including security of supply. The facility will generate energy from a locally sourced waste resource and thereby contribute to an overall objective of reducing reliance on imported fuel. The addition of waste to the fuel mix will not only benefit in terms of renewable targets, but will also enhance fuel diversity. The ‘non-renewable’ fraction of the waste, although not contributing to renewable targets is nevertheless of significant benefit insofar as it displaces ‘virgin’ fossil fuels in the Northern Ireland market and reduces Northern Ireland’s (and Ireland’s) reliance on imported fuel. The non-intermittent nature of an EFW facility, its indigenous fuel source and its likely 95%+ availability are such that it will provide a reliable capacity contribution to the market at a low cost which is not sensitive to the vagaries of the international fuel market.

Position 2.4

Energy from Waste is supported by Northern Ireland energy policy. This energy policy recognises the importance of Energy from Waste in achieving the dual role of contributing to security of supply and offering a waste management solution.

Position 2.5

Energy from Waste should be recognised as providing non-intermittent, renewable electricity that is 100% indigenously fuelled, contributing to improving security of supply and reducing greenhouse gas emissions and dependency on imported primary fuels.

Position 2.6

The fuel for Energy from Waste is provided at low or negative cost and will displace imported fuels. This will directly reduce the cost to consumer of electricity within the SEM and will also reduce the exposure of the SEM to international primary fuel fluctuations.

3. Energy from Waste in the Single Electricity Market

Likely penetration of Energy from Waste into the SEM Generation Portfolio

The WFD and Landfill Directive targets have tasked Member States with reducing the quantity of municipal solid waste going to landfill. Through the regional plans required by the WFD across the Island of Ireland, thermal treatment of waste using energy recovery has been identified as a key component of the strategy to achieve these targets. Many of the waste strategies and plans identifying and promoting the role of Energy from Waste have been in existence for more than 10 years.

It is, however, apparent from activity and trends in the waste sector that recycling and alternative methods of diversion of waste from landfill will control the level of residual waste that will need to be treated by thermal treatment. There is a natural constraint on the Energy from Waste projects and projects for other energy recovery facilities that may generate electricity from municipal type wastes. The ones now proposed on the Island of Ireland are likely to remain as the only facilities of scale that will be developed to treat this waste. The table below outlines the likely potential extent of the regional Energy from Waste market across the Island of Ireland. Although merchant EfW facilities may also enter the market, they are likely to be few in number due to the high capital costs on the plant to meet environmental compliance.

Region	Facility	Approvals	Annual Treatment Capacity	Energy Generation	Status
Dublin Rol	Dublin EfW Plant, Poolbeg Peninsula	EPA Waste Licence Planning Permission	600,000 tonnes non-hazardous municipal and industrial waste	60 MW	Under Development
North East Rol	Meath EfW Facility, Duleek	EPA Waste Licence Planning Permission	200,000 tonnes non-hazardous municipal and industrial waste	15 MW	Construction on-going, due to be operational in September 2011
Cork Rol	Cork EfW Ringaskiddy	Strategic Infrastructure Application made to An Bord Pleanála	140,000 tonnes municipal waste 100,000 of non-hazardous and hazardous industrial wastes	22MW	Awaiting approval from An Bord Pleanála
arc21 NI	EfW (Eastern NI)	All approvals to be obtained	400,000 tonnes non-hazardous municipal waste	30- 40MW	In Procurement
SWaMP2008 NI	(Southern NI)	All approvals to be obtained			
North West NI	(Northern NI)	All approvals to be obtained			
South East Rol	Undefined	All approvals to be obtained	Not finalised as Energy From Waste	15MW (if EfW chosen technology)	In Procurement
Total			Est. tonnes 1.5 to 1.7 million	Est. MW 160	

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The table outlines both projects under construction and those that *may* ultimately become Energy from Waste facilities. The estimated 160MW estimate is considered a maximum estimate at which point the waste market will achieve saturation with Energy from Waste capacity.

Position 3.1

Energy from Waste generation will be a limited but significant addition to the SEM generation portfolio. Whilst, in terms of proportionality, Energy from Waste is at the margins of the electricity narrative for the Island of Ireland it is absolutely central to the narrative of managing residual wastes.

Operational and Technical Principles of Energy from Waste Technology

Energy from Waste technology is mature, with a large degree of standardisation in its design and operation across the globe. This design has developed over a number of years and in Europe has been further refined and standardised by the Waste Incineration Directive (WID)⁶. The WID sets out the technical and environmental standards that waste incinerators must meet. In addition, the WFD also requires the achievement of certain levels of energy recovery for a facility to be determined a 'recovery' activity.

At a basic level it must be understood that the arc21 facility is being designed in the first instance to treat waste in accordance with EU Directives and binding targets.

The following points outline the technical and operational constraints imposed on Energy from Waste facilities and the impact of these constraints on the operation of the facility as a Generator Unit within SEM:

- The arc21 project is obliged to collect and treat waste that is produced on a constant basis within its area. The operator of the facility must treat this waste on a continuous basis to achieve the targets required by the WFD. Non-compliance with these statutory targets could result in significant financial consequences for the statutory bodies charged with managing waste and Northern Ireland's citizens.
- The WFD sets out an efficiency criterion that Energy from Waste facilities must meet in order to be determined a recovery operation and so satisfy statutory diversion targets. New facilities must have a minimum efficiency factor (R1) of 0.65 in order to be considered recovery, according to a formula included in Annex II of the Directive. This formula describes all energy flows to, from and within the plant and ascribes energy conversion factors to electricity and steam to reflect their relative usefulness. Where an Energy from Waste facility cannot export electricity (and supplies only in-house / parasitic load), its efficiency according to the R1 formula reduces significantly to likely less than 0.2. Therefore, there could be some inevitable consequences in not satisfying R1:
 - A breach of planning conditions;
 - Non-compliance with the facility's operating licence with respect to emissions to the environment; and ultimately,

⁶ Directive 2000/76/EC of the European Parliament and of the Council of 4th December 2000 on the Incineration of Waste

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- As not deemed a recovery facility, a breach of the requirements of the WFD with regard to the statutory waste diversion targets.

It is therefore an operational imperative, determined by EU Directives, for an Energy from Waste facility to generate and export electricity nearly all the time.

- The fuel for the arc21 facility is not accessed or chosen for commercial reasons, it is accepted under statutory obligations. arc21 has no control over the composition of the input fuel and as such they cannot dictate the ratio of biodegradable fraction to non-biodegradable fraction. Consequently the arc21 facility operators will have no control over the extent to which the output of the facility on a given day is part-renewable. The position of an EfW facility in this regard should be distinguished from that of 'hybrid' generators.
- If the facility is prevented from exporting electricity, then to avoid a breach of the facility's operating licence it would be required to shutdown. Because of the specific operational conditions that govern the incineration of waste in line with the WID, a plant shutdown is more onerous for an Energy from Waste facility than for conventional generators. For example, no waste fuel can be introduced to the furnace during startup until a minimum temperature of 850 degrees Celsius is met. This means that the furnace must be pre-heated using imported fossil fuels that are not used during the normal operation of the plant. The minimum shutdown period for an Energy from Waste plant is approximately 8 to 16 hours. A plant shutdown would not only incur operational costs to the plant but would also incur the variable costs of fuel, which are in effect the cost of making alternative arrangements for its management. It can therefore be expected that the startup costs could be very high, due to this licence condition, even though the variable cost during normal operations is minimal.

Position 3.2

arc21 is obliged to accept its fuel in response to statutory obligations and statutory waste management targets and has no control over its composition. Energy from Waste is thus clearly distinguished in this regard from hybrid generators who will select their feedstock and composition of same on a commercial basis, in response to economic indicators. Imposition of a hybrid classification qualified by rates of renewable fuel utilisation on Energy from Waste technology will be a direct barrier to market entry, due to this inherent lack of control and certainty of fuel composition. This barrier will directly reduce and possibly prevent the potential renewable energy represented by Energy from Waste reaching the market and also result in a failure to meet statutory waste targets.

Position 3.3

Energy from Waste technologies operate in the context of technical constraints imposed by EU and National legislation, regulation and licensing. These constraints determine that Energy from Waste facilities must continuously treat waste and constantly produce useful energy whilst doing so.

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Position 3.4

These constraints dictate that the ability to dispatch electricity at all times and to operate on a 'must-run' basis are critical, not only to the operation of the facility, but to the achievement of statutory waste management EU targets.

Position 3.5

Any risk to the dispatching of electricity or operating as a 'must-run' unit will prove a significant barrier to entry to the market for Energy from Waste facilities. This barrier could result in the loss of indigenously fuelled, non-intermittent renewable electricity as described above, in addition to a failure of Northern Ireland meeting its statutory waste targets.

4. Conclusions

arc21 believe that there is a sufficient and clear basis for the provision of mandatory priority dispatch status to Energy from Waste facilities in the SEM.

To ensure that our binding waste targets are met, the SEM Committee needs to provide certainty regarding this issue and determine that Energy from Waste facilities are accorded mandatory priority dispatch within the Single Electricity Market in recognition of:

- The clear provisions and direct interpretation of EU Directives 2009/28/EC (the Renewable Energy Directive) and 2009/72/EC (the Internal Market in Electricity Directive) defining them as renewable generators and requiring that they be provided priority dispatch.
- The protection it provides for the Member States on the Island of Ireland from failing to meet their statutory waste targets as set out in the WFD and the consequential financial penalties.
- Their contribution to the meeting of national renewable energy and targets through to the provision of non-intermittent renewable electricity from a 100% indigenous fuel source, increasing security of supply.
- The technical, environmental and licensing constraints they are required to operate under dictating their need for constant full dispatch and their classification as a must-run generator unit.
- That in not taking cognisance of the wide range of waste legislation the SEM Committee could be a danger of creating a barrier to entry to the Single Electricity Market for Energy from Waste.
- The need to avoid an asymmetrical approach where the SEM or energy policy is developed without adequate regard to statutory obligations for waste management. arc21 would be pleased to engage with the SEM Committee and the government Departments in each jurisdiction to explore what waste legislative provisions are already established or proposed which could have utility in preventing any abuse or inappropriate outcomes in the Single Electricity Market.

The SEM Committee have the ability to influence whether Northern Ireland (and Ireland) can meet EU waste targets, thus avoiding risk of EU infraction proceedings. Through this, they will benefit by the addition of a predictable number of base-load non-intermittent renewable energy facilities that are 100% indigenously fuelled and are close to major demand centres.

Energy from Waste facilities may not be delivered where uncertainty remains regarding their treatment within the Single Electricity Market, which will have significant consequences to ratepayers in arc21's area and Northern Ireland's citizens.